
IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

PATENT

In re application of: RAMIREZ et al.

Attorney Docket No.: FAS-003-US

Application No.: 10/758,845

Examiner: Weber, Jonathan C.

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Group: 3641

Title: GUN CHAMBER

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REPLACEMENT APPEAL BRIEF UNDER 37 C.F.R. 41.37

Further to Notice of Appeal filed in this application on September 17, 2008, this Replacement Appeal Brief is being submitted to the Board of Patent Appeals and Interferences in response to the Notification of Non-Compliance mailed February 13, 2009.

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Dear Sirs:

Appellants hereby appeal the decision of the primary examiner mailed March 17, 2008. The Appeal Board is thanked for their review of the application.

I. REAL PARTY IN INTEREST

The real party in interest is HALO50 L.L.C., a limited liability corporation of the state of Nevada, the assignee of all rights, title and interest in the present application from applicants Henry Gene Ramirez and Gabriel A. Ramirez recorded in the United States Patent and Trademark Office at reel/frame 021376/0839.

II. RELATED APPEALS AND INTERFERENCES

Based upon information and belief, there are no appeals or interferences that could directly affect or be directly affected by or have a bearing on the decision by the Board of Patent Appeals and Interferences in the pending appeal.

III. STATUS OF THE CLAIMS

The final rejection of Claims 4-13 is being appealed. These appealed claims are reproduced in the Claims Appendix hereto. Original claims 4-13 remain in the present application. Status of the claims is as follows:

- a) Claims 1-3 have been previously withdrawn.
- b) Claim 4-13 have been rejected.
- c) All rejected claims 4-13 are being appealed.

IV. STATUS OF THE AMENDMENTS

A Response After Final has been filed since the mailing on March 17, 2008 of the final Office Action herein. The Response After Final was filed August 16, 2008 along with terminal disclaimers and Declarations which are all hereby incorporated by reference.

V. SUMMARY OF THE CLAIMED SUBJECT MATTER

A. Regarding Independent Claim 4

The appealed independent Claims 4 relates to a gun chamber for a 50 caliber weapon having particular dimensions to enable optimal performance. (See paragraph 0017; page 6, lines 21-24). Optimal 50 caliber weapons enable more widespread use of these weapons in military and law enforcement use. (See paragraphs 0007-0008; page 2, lines 19-23). Governmental costs associated with the manufacture and transport of weapons and ammunition associated with this gun chamber will be dramatically reduced. (See paragraph 0017; page 7, lines 1-5). Lastly, United States civilian and service members' lives will be saved by the use of such gun chambers. (See paragraph 0010 and 0017; page 3, lines 14-17, and page 7, lines 5-7).

Particularly, Claim 4 of the present invention details the components of the gun chamber and specifies that the case section length. (See paragraphs 0019 and 0027; page 7, lines 14-25, and page 10, lines 4-14; see also Figure 1). This gun chamber is unique in that the case section length is dependent upon water weight volume of the cartridge case, the bore diameter of the gun barrel, and the weight of the bullet. *Id.*

Other systems do not appear to contemplate the use of water weight in the determination of case length. Thus, while other systems may propose "efficient" cartridges with corresponding case length, the optimal case section length as disclosed in the present invention is nonobvious and depends heavily upon water weight of the case. Since the case is not cylindrical the water weight factor is of extreme importance.

In particular, Claims 4 states:

“A gun chamber for use with a gun action and barrel, and configured **for accepting a 50 caliber gun cartridge**” (See paragraph 0017; page 6, lines 21-22).

“having a proximal and distal end for propelling a bullet of a pre-determined weight,”
(See paragraph 0019; page 7, line 16; see also Figure 1).

“the gun chamber comprising: a case section proximal to the gun action and configured for housing **a cartridge case having a diameter of approximately 0.688 inches at the distal end;**” (Emphasis Added). (See paragraph 0019; page 7, lines 21-22; and Figure 3).

“a free bore section proximal to the barrel and distal end of the cartridge case;” (See paragraph 0030; page 11, lines 7-12; and Figure 3).

“a shoulder section at the proximal end angling inward from the case section;” (See paragraph 0028; page 10, lines 15-24; and Figure 2).

“and a neck portion located between the shoulder section and the free bore section” (See paragraph 0030; page 11, lines 7-9; and Figure 3).

“wherein the neck portion is configured for accepting a cartridge having a mouth with a bore diameter of approximately .510 inches for accepting a bullet;” (See paragraphs 0027-0028; page 10, lines 11-16; and Figures 1 and 3).

“and wherein **the length of the case section is dependant upon water weight volume of the cartridge case, the bore diameter of the gun barrel, and the weight of the bullet**” (Emphasis Added). (See paragraph 0019; page 7, lines 14-25; and Figure 3).

B. Regarding Independent Claim 9

The appealed independent Claims 9 relates to the manufacture of the gun chamber of Claim 4. As previously noted, optimal 50 caliber weapons enable more widespread use of these weapons in military and law enforcement use. (See paragraphs 0007-0008; page 2, lines 19-23).

Governmental costs associated with the manufacture and transport of weapons and ammunition associated with this gun chamber will be dramatically reduced. (See paragraph 0017; page 7, lines 1-5). Lastly, United States civilian and service members' lives will be saved by the use of such gun chambers. *Id.*

Particularly, Claim 9 of the present invention details the forming of components of the gun chamber and specifies that the case section length. (See paragraphs 0019 and 0027; page 7, lines 14-25, and page 10, lines 4-14; see also Figure 1). This formed gun chamber is unique in that the case section length is dependent upon water weight volume of the cartridge case, the bore diameter of the gun barrel, and the weight of the bullet. *Id.*

Other systems do not appear to contemplate the use of water weight in the determination of case length when fabricating a gun chamber. Thus, while other systems may propose "efficient" cartridges with corresponding case length, the optimal case section length as disclosed in the present invention is nonobvious and depends heavily upon water weight of the case. Since the case is not cylindrical the water weight factor is of extreme importance.

In particular, Claims 9 states:

"A method for fabricating a gun chamber for use with a gun action and barrel, and configured for accepting a 50 caliber gun cartridge" (See paragraph 0017; page 6, lines 21-22).

"having a proximal and distal end for propelling a bullet of a pre-determined weight," (See paragraph 0019; page 7, line 16; see also Figure 1).

"the method comprising: forming a case section proximal to the gun action and configured for housing a **cartridge case having a diameter of approximately 0.688 inches at the distal end;**" (Emphasis Added). (See paragraph 0019; page 7, lines 21-22; and Figure 3).

"forming a free bore section proximal to the barrel and distal end of the cartridge case;" (See paragraph 0030; page 11, lines 7-12; and Figure 3).

“forming a shoulder section at the proximal end angling inward from the case section;”
See paragraph 0028; page 10, lines 15-24; and Figure 2).

“and forming a neck portion located between the shoulder section and the free bore section” (See paragraph 0030; page 11, lines 7-9; and Figure 3).

“wherein the neck portion is configured for accepting a cartridge having a mouth with a bore diameter of approximately .510 inches for accepting a bullet;” (See paragraphs 0027-0028; page 10, lines 11-16; and Figures 1 and 3).

“and wherein the length of the case section is dependant upon water weight volume of the cartridge case, the bore diameter of the gun barrel, and the weight of the bullet.”
(Emphasis Added). (See paragraph 0019; page 7, lines 14-25; and Figure 3).

C. Regarding Dependent Claims 5-8, and 10-13

Claims 5 and 10 state “wherein the water weight volume of the casing in grains multiplied by the bore diameter of the mouth in thousandths of an inch divided by the weight of the bullet in grains is greater than or equal to 110 and less than or equal to 145.” (See paragraph 0019).

Claims 6 and 11 add that “the shoulder section angles inward at angle of 25 to 30 degrees.” (See paragraphs 0028-0029).

Claims 7 and 12 further limits by stating that the “a sum of the case section, the shoulder section, the neck section and the free bore section has a maximum total length of 4.0 inches.” (See claim 7 as originally filed).

Claims 8 and 13 goes on to state that “the case section has a length ranging from 1.9 inches to 2.5 inches.” (See claim 8 as originally filed).

Appellants assert that all pending Claims 4-13 are novel and non-obvious over the cited art for all the reasons given below.

VI. GROUND OF REJECTION TO REVIEWED ON APPEAL

The Board is being asked to review the final rejection of Claims 4-13 under 35 U.S.C. 112, and under 35 U.S.C. 103 as being unpatentable over Jamison (US 5,970,879).

VII. REMARKS/ARGUMENTS

Appellants thank the Appeal Board for the review of this Appeal Brief. Appellants will now address the patentability of the present invention, with particular attention paid to the rejections made by the Examiner in response to the Amendment dated January 9, 2008, which is hereby incorporated by reference. Additionally, the Response After Final dated August 16, 2008 is likewise incorporated by reference.

For the sake of clarity, Appellants have divided the arguments into various subsections; however, this is not intended to be limiting of the arguments contained therein. Thus, arguments in one subsection may be applied to all applicable subsections.

A. RESPONSE TO OBJECTION OF THE SPECIFICATION

In the Final Office Action dated March 17, 2008, the Examiner objected to the specification "as failing to provide proper antecedent basis for the claimed subject matter... Correction of the following is required: the specification contains no antecedent basis for the limitation 'wherein the length of the case section is dependent upon water weight volume of the cartridge case, the bore diameter of the gun barrel, and the weight of the bullet.' In particular, it

is noted that this limitation relates to the length of the case section, whereas the limitation in Claims 5 and 10 relate to an overall range of values that those variables contain.”

Appellants respectfully direct the Appeal Board’s attention to pages 12-13 of the specification which includes a detailed table illustrating sixteen alternative embodiments of 50 caliber cartridges having a 30 degree shoulder, and showing, by example, the respective Efficiency Ratings of the various case lengths; Case (Length) being dependent on Case Capacity (measured by Water Weight) which is a function of at least the Bore (Diameter) and Bullet Weight. Appellants also wish to note that Claim 4 as originally filed in the present application substantially recites the objected claimed limitation.

B. RESPONSE TO REJECTION OF THE CLAIMS UNDER 35 USC §112

Also in the Office Action, the Examiner rejected Claims 4-13 under 35 U.S.C. 112, first paragraph, as failing to comply with the enablement requirement. The examiner has stated that “The claim(s) contains subject matter which was not described in the specification in such a way as to enable one skilled in the art to which it pertains, or with which it is most nearly connected, to make and/or use the invention. In particular, the last limitation of claim 4 states, ‘the length of the case section is dependent upon water weight volume of the casing, the bore diameter of the gun barrel, and the weight of the bullet.’ There is no indication, in the specification or claims, as to how it depends on these variables, and further, what value might be specified by these variables. As such it is indefinite.”

Appellants respectfully submit that with respect to the recitation of “length of the case section ...”, Claim 4 is compliant with 35 U.S.C. 112 for the reasons discussed above. Hence, Dependent Claims 5-8 are also in compliance with 35 U.S.C. 112. Base Claim 9 is also in

compliance as for the same reasons as Claim 4; hence, Dependent Claims 10-13 are also in compliance with 35 U.S.C. 112

The Examiner has also stated "...no actual cartridge cases is positively claimed. Thus any limitations on the water weight volume, bore diameter of the mouth, or the weight of the bullet are irrelevant except to define what the gun chamber is capable of use with (as it applies to claims 4, 5, 9, and 10)...Although this rejection was previously withdrawn, it was withdrawn in error because of the other 112 rejection that was resolved."

Appellants wish to point out that because of the precise chamber/cartridge fit needed for safe and accurate discharge of firearms, chamber dimensions and cartridges dimensions are essentially synonymous. Hence, virtually all limitations related to case cartridge dimension(s) will at least indirectly impact the respective chamber dimension(s). Accordingly, Claim 4 appropriately recites multiple case cartridge limitations, for example, "... accepting a 50 caliber gun cartridge ... housing a cartridge case ... of the cartridge case ... configured for accepting a cartridge ... water weight volume of the cartridge case".

C. RESPONSE TO REJECTION ON THE GROUND OF DOUBLE PATENTING

Claims 4-13 were rejected on the ground of nonstatutory obviousness-type double patenting as being unpatentable over claims 1-8 of U.S. Patent No. 6,532,876 and claims 1-2 of U.S. Patent No. 6,679,150. The Examiner states "Although the conflicting claims are not identical, they are not patentable distinct from each other because they relate to corresponding components (or methods therefore) defined in exactly the same manner. The gun cartridge and gun chamber must be built to fit one another, and both sets of claims define the same sets of measurements – the older patent thus fully implies the claims of the present invention.

Additionally, claim 4 of the present invention is broader than claim 1 of the '876 patent in that it does not specify case length of shoulder angle.”

With respect to the nonstatutory obviousness-type double patenting rejection, two terminal disclaimers were filed with the August 16, 2008 Response After Final. These terminal disclaimers are likewise reproduced herein. Appellants respectfully request withdrawal of the rejection.

D. RESPONSE TO REJECTION OF THE CLAIMS UNDER 35 USC §103

Also in this Office Action, the Examiner rejected Claims 4-13 under 35 U.S.C. 103(a) as being unpatentable over Jamison (USP 5,970,879).

The Examiner states that “Jamison discloses a gun chamber (figure 2 element 16) for use with a gun action and barrel and configured for accepting a gun cartridge having a proximal and distal end for propelling a bullet of a pre-determined weight, the gun chamber having a case section (near the element number 16) proximal to the gun action and configured for housing a cartridge case, a free bore section (41) proximal to the barrel and distal end of the cartridge case, a shoulder section (angled section to the left of element 40 in figure 2A) at the proximal end angling inward from the case section, a neck portion (terminating in element 40) located between the shoulder section and the free bore section wherein the neck portion is configured for accepting a cartridge having a mouth for accepting a bullet, **wherein the length of the case section is inherently dependent upon water weight volume of the cartridge case, the bore diameter of the gun barrel, and the weight of the bullet.**” (Emphasis added).

The Examiner further states that “Jamison further discloses that the shoulder section angles inward at an angle of 30 degrees (col. 6, line 18), and a sum of the case section, shoulder section, neck section, and free bore section having a maximum total length of 4.0 inches (col. 4, lines 12-13, where the value as described in the claim is equal to L plus the section 41. L can be calculated to be max at 2.35, and the section 41 is very small relative to that amount, so it does not exceed 4.0 inches total). Further, the case section has a length (L) of between 1.9 and 2.5 inches, as shown above. **Jamison does not disclose a 50-caliber cartridge with the measurements and ranges as claimed.**” (Emphasis added).

Finally, the Examiner states that “Jamison discloses the claimed invention except for that the cartridge is a 50-caliber gun cartridge with a diameter of approximately 0.668 inches at the distal end and a mouth with a bore diameter of approximately .510 inches.” The Examiner believes “[I]t would have been obvious to one of ordinary skill in the art at the time the invention was made to provide those values for a 50-caliber cartridge, **since it has been held that discovering an optimum value of a result effective variable involves only routine skill in the art.**” (Emphasis added).

Regarding this rejection, the Examiner also maintains that “Jamison discloses the claimed invention except for the water weight volume of the casing in grains multiplied by the bore diameter of the mouth in thousandths of an inch divided by the weight of the bullet in grains is greater than or equal to 110 and less than or equal to 145. It would have been obvious to one of ordinary skill in the art at the time the invention was made to provide the bullet properties in that range, since it has been held that where the general conditions of a claim are disclosed in the prior art, discovering the optimum or workable ranges involves only routine skill in the art.”

Appellants believe that Jamison does not render the present invention obvious since: 1) the subject matter claimed in Claims 4 and 9 are not disclosed by Jamison; 2) the working ranges disclosed are not generated through normal testing by one skilled in the art; and 3) the disclosure

of Jamison explicitly bars it from being appropriate prior art for the caliber bullets disclosed by Claims 4-13. Each of these arguments will be explored in more detail below.

1. Subject matter claimed in Claims 4 and 9 are not disclosed by Jamison

Appellants respectfully assert that Jamison does not disclose “wherein the length of the case section is inherently dependent upon water weight volume of the cartridge case, the bore diameter of the gun barrel, and **the weight of the bullet**” as claimed in Claims 4 and 9. (Emphasis Added). Instead, Jamison appears to simply disclose “maximizing the powder-carrying capacity [by having] the ratio of **the overall case length L over such diameter D** (i.e. L/D) should be no more than about 4.2.” (Emphasis added). (See Column 4, lines 3-5). Thus, Jamison appears to disclose wherein the length of the case section is dependent upon diameter size without regard to **weight of the bullet or the water weight of the case**. This design criteria is unique to the present invention. As such, the disclosed invention as claimed in Claims 4 and 9, which utilize bullet weight and case water weight in determination of cartridge length, are novel and non-obvious over Jamison.

2. The working ranges disclosed are not generated through normal testing

To provide further support for Appellants arguments, Appellants previously submitted a couple of Declarations under 37 CFR 1.132 with the August 16, 2008 Response After Final. These Declarations are likewise reproduced herein. The first Declaration has been executed by Donald Wadsworth, a highly-educated firearms and ballistics expert. The second Declaration has been executed by Hershel Davis, a retired decorated Navy SEAL, who is now a highly sought after civilian contractor for his expertise in fire arms. Davis achieved the rank of Master Chief during his naval career.

These Declarations also support secondary considerations of non-obviousness including long felt yet unmet need, ample resources for development, unpredicted results, and imminent commercial success. Particularly, in Davis' declaration he stated that he "believe[s] that there is an immediate and strong need" for the present invention, and yet "no weapon system has been produced that has the greatly improved combination of efficiency and compactness with significant logistical savings that is granted" by the present invention despite "ample expenditure of financing and research in such weapons design."

Wadsworth's declaration adds that "determining a single optimal set of dimensions for a 50 caliber chamber... would be unduly burdensome." And that, as an expert in the field of arms design, he believes that "since the introduction of the 50 caliber BMG in 1917, many have assumed and accepted that firearms with large bore diameters are inherently inefficient... [h]owever, the chamber design of the present invention ... significantly improv[es] or eliminat[es] all [these] inefficiencies and disadvantages."

An obviousness determination is not the result of a rigid formula disassociated from the consideration of the facts of a case. Indeed, the common sense of those skilled in the art demonstrates why some combinations would have been obvious where others would not. See *KSR Int'l Co. v. Teleflex Inc.*, 550 U.S. (2007). "In determining whether the subject matter of a patent claim is obvious, neither the particular motivation nor the avowed purpose of the patentee controls. What matters is the objective reach of the claim." *KSR Int'l Co. v. Teleflex Inc.*, 550 U.S. (2007)" The proper question to have asked was whether a pedal designer of ordinary skill, facing the wide range of needs created by developments in the field of endeavor, would have seen a benefit to upgrading [a prior art patent] with a sensor." *KSR Int'l Co. v. Teleflex Inc.*, 550 U.S. (2007). In the years since John Browning's .50 BMG was introduced, inventors have tried unsuccessfully to make smaller, more efficient .50 caliber cartridges to duplicate the velocity of the .50 BMG while solving the problems of barrel wear throat erosion, and muzzle blast. Inventors have been unsuccessful until now. In view of the submitted Declarations, Appellants believe that Claims 4-13 are allowable under Section 103.

3. Disclosure of Jamison explicitly bars it from being appropriate prior art

It is impossible to use the cited reference as prior art in the manner suggested by the Examiner. Claim 1 of Jamison teaches a case having a first portion of cylindrical shape and a second portion of a narrower cylindrical shape, and a frusto-conical shoulder portion interconnecting the first and second portions, with the first portion having an outer case diameter of 0.53 inches. A case must have a minimum of approximately 0.040" difference between the base of the shoulder and the top of the shoulder, and the shoulder must have a minimum of a 23 degree angle to maintain proper headspace. (Headspace is defined as the fit of a cartridge in a chamber measured as the distance from breech face to that part of the chamber which stops the case's forward movement). If a .051 inch diameter bullet is inserted into the case of Jamison, allowing .020 inches for the thickness of the casing, which is .010 on either side of the bullet, the outside diameter of the casing at the neck would measure .530 inches. This eliminates all possibility of any shoulder. Therefore there would be no way to headspace the cartridge.

Appellants believe a case must have at least a .015 inch taper from base of the case to the base of the shoulder to allow for the fired cartridge to release from the gun chamber. Therefore, with a case that begins with a 0.53 inch outside case diameter, subtracting the minimum 0.01 inches due to case taper, then the minimum 0.040 inch required for the frusto-conical shoulder for headspacing, and the .020 inch thickness of case wall, the diameter remaining at the case mouth of the second portion of the case of Jamison would be .455 inches. Therefore the largest diameter projectile insertable into the case mouth is .458 diameter.

In the Detailed Description of the Preferred Embodiment of Jamison, paragraph 4, the .458 diameter bullet is the largest practical diameter discussed by Jamison for his cartridge. Even Jamison is pushing the envelope with the .458 bullet, knowing that a .040 inch shoulder would be the smallest shoulder acceptable to one skilled in the art. In his own words, Jamison admits it is not practical to use a projectile with a diameter greater than .458 inches. Jamison appears to never have intended his invention to accept a projectile larger than .458 diameter.

Jamison appears to have strictly designed his cartridge to use the popular hunting projectiles. Had Jamison's intent been to use a projectile of .510 diameter, his outside case diameter would have to be a minimum of .585 inches.

Jamison appears to not intend to put a .50 caliber bullet in his cartridge. The prior art appears to lack any suggestion that the reference should be modified in such a manner. In fact, Jamison's patent is titled "High-power firearm cartridge for *short-action* chamber and bolt assembly." (Emphasis Added). The claimed invention is designed to use a *standard length action*, which puts it in a completely different category than Jamison, and would be inoperable in a short action.

In addition, Jamison states in Background of the Invention: "the present invention is directed to a high-powered firearm cartridge of unique profile which makes it especially adaptable for use in a *short-action* firearm having a mating chamber and bolt assembly." Further, "[t]he present invention also provides a unique cartridge configuration which enables the use of a short, fat cartridge in a *short-action* firearm while assuring smooth and reliable feeding and chambering of the cartridge from a magazine." (Emphasis Added). *The short cartridge of Jamison appears to be a modification of a conventional cartridge of longer narrower profile using the same quantity of powder and same bullet diameter to produce higher muzzle velocity.*

The cartridge intended to be received by the chamber of the present claimed invention is not a short, fat cartridge as is the cartridge of Jamison. The claimed invention provides a chamber for a .50 caliber that will function in a standard length action without the large cumbersome action that the .50 BMG cartridge requires and still maintain the muzzle velocity of the .50 BMG in a 26-28" barrel. The cartridge used by the claimed invention is a modification of the .50 BMG cartridge, based upon existing standard-length cases, using the same bullet diameter but approximately 120 grains less powder than the .50 BMG, and producing the same muzzle velocity of the .50 BMG in a case that will function through a standard length action using approximately half the propellant required by the .50 BMG to achieve the same muzzle velocity.

As has been explained, the cartridge of Jamison's patent does not appear to be useable in standard-length firearms for which chamber of the present invention is designed. Furthermore, Jamison's cartridge appears be not be able to be modified to be usable in standard-length action firearms. Finally, Jamison never appears to have intended or considered that his cartridge be used in standard-length action firearms.

E. CONCLUSION

In sum, Appellants believe that all pending Claims 4-13 are allowable over the cited art and are also in allowable form and respectfully request a Notice of Allowance for this application from the Appeal Board. The Appeal Brief fee has already been charged to our credit card (via EFS). However, the commissioner is authorized to charge any additional fees that may be due to our Deposit Account No. 50-2766 (Order No. FAS-003-US). Should the Appeal Board believe that a telephone conference would expedite the prosecution of this appeal; the undersigned can be reached at telephone number 925-570-8198.

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VIII. LISTING OF CLAIMS APPENDIX:

What is claimed is:

1. (Withdrawn) A gun configured to accept an efficient 50 caliber gun cartridge having a proximal and distal end for propelling a projectile comprising:
 - an action;
 - a barrel; and
 - a chamber for housing a gun cartridge comprising:
 - a rimless cylindrical casing having a diameter of approximately 0.688 inches at the distal end and a shoulder at the proximal end angling inward as a means to allow easier feeding in a machine gun;
 - a primer mounted on said cylindrical casing; and
 - a neck portion extending distally from the shoulder wherein said neck portion has a mouth for accepting a projectile having a bore diameter of approximately .510 inches;
 - wherein said casing has a length ranging from 1.9 inches to 2.5 inches measured from the primer to the mouth of said neck; and
 - wherein said length of said casing is dependant upon water weight volume of said casing, said bore diameter of said mouth, and weight of the projectile.
2. (Withdrawn) The gun of claim 1, wherein the chamber is configured to house the cartridge and the projectile with a combined maximum length of 4.0 inches.
3. (Withdrawn) The gun of claim 1, wherein said water weight of said casing in grains multiplied by said bore diameter of said mouth in thousandths of an inch divided by said weight of the projectile in grains is greater than or equal to 110 and less than or equal to 145.

4. (Previously Presented) A gun chamber for use with a gun action and barrel, and configured for accepting a 50 caliber gun cartridge having a proximal and distal end for propelling a bullet of a pre-determined weight, the gun chamber comprising:
- a case section proximal to the gun action and configured for housing a cartridge case having a diameter of approximately 0.688 inches at the distal end;
 - a free bore section proximal to the barrel and distal end of the cartridge case;
 - a shoulder section at the proximal end angling inward from the case section; and
 - a neck portion located between the shoulder section and the free bore section wherein the neck portion is configured for accepting a cartridge having a mouth with a bore diameter of approximately .510 inches for accepting a bullet; and
- wherein the length of the case section is dependant upon water weight volume of the cartridge case, the bore diameter of the gun barrel, and the weight of the bullet.
5. (Previously Presented) The gun chamber recited in claim 4, wherein the water weight volume of the casing in grains multiplied by the bore diameter of the mouth in thousandths of an inch divided by the weight of the bullet in grains is greater than or equal to 110 and less than or equal to 145.
6. (Original) The gun chamber recited in claim 4, wherein the shoulder section angles inward at angle of 25 to 30 degrees.
7. (Previously Presented) The gun chamber recited in claim 4, wherein a sum of the case section, the shoulder section, the neck section and the free bore section has a maximum total length of 4.0 inches.
8. (Previously Presented) The gun chamber recited in claim 5, wherein the case section has a length ranging from 1.9 inches to 2.5 inches.

9. (Previously Presented) A method for fabricating a gun chamber for use with a gun action and barrel, and configured for accepting a 50 caliber gun cartridge having a proximal and distal end for propelling a bullet of a pre-determined weight, the method comprising:

forming a case section proximal to the gun action and configured for housing a cartridge case having a diameter of approximately 0.688 inches at the distal end;

forming a free bore section proximal to the barrel and distal end of the cartridge case;

forming a shoulder section at the proximal end angling inward from the case section; and

forming a neck portion located between the shoulder section and the free bore section wherein the neck portion is configured for accepting a cartridge having a mouth with a bore diameter of approximately .510 inches for accepting a bullet; and

wherein the length of the case section is dependant upon water weight volume of the cartridge case, the bore diameter of the gun barrel, and the weight of the bullet.

10. (Previously Presented) The method recited in claim 9, wherein the water weight volume of the casing in grains multiplied by the bore diameter of the mouth in thousandths of an inch divided by the weight of the bullet in grains is greater than or equal to 110 and less than or equal to 145.

11. (Previously Presented) The method recited in claim 9, wherein the shoulder section angles inward at angle of 25 to 30 degrees.

12. (Previously Presented) The method recited in claim 4, wherein a sum of the case section, the shoulder section, the neck section and the free bore section has a maximum total length of 4.0 inches.

13. (Previously Presented) The method recited in claim 10, wherein the case section has a length ranging from 1.9 inches to 2.5 inches.

IX. EVIDENCE APPENDIX

Four separate documents are attached as supplemental Evidence. These documents include two terminal disclaimers of double patenting, as well as two affidavits providing evidence of secondary considerations. The first Declaration has been executed by Donald Wadsworth, a highly-educated firearms and ballistics expert. The second Declaration has been executed by Hershel Davis, a retired decorated Navy SEAL, who is now a highly sought after civilian contractor.

X. RELATED PROCEEDINGS APPENDIX

none

**TERMINAL DISCLAIMER TO OBTAIN A DOUBLE PATENTING
REJECTION OVER A "PRIOR" PATENT**Docket Number (Optional)
FAS-003-US

In re Application of: Ramirez et al.

Application No.: 10/758,845

Filed: January 16, 2004

For: GUN CHAMBER

The owner*, HALO50, INC., of 100 percent interest in the instant application hereby disclaims, except as provided below, the terminal part of the statutory term of any patent granted on the instant application which would extend beyond the expiration date of the full statutory term prior patent No. 6,679,150 as the term of said prior patent is defined in 35 U.S.C. 154 and 173, and as the term of said prior patent is presently shortened by any terminal disclaimer. The owner hereby agrees that any patent so granted on the instant application shall be enforceable only for and during such period that it and the prior patent are commonly owned. This agreement runs with any patent granted on the instant application and is binding upon the grantee, its successors or assigns.

In making the above disclaimer, the owner does not disclaim the terminal part of the term of any patent granted on the instant application that would extend to the expiration date of the full statutory term as defined in 35 U.S.C. 154 and 173 of the prior patent, "as the term of said prior patent is presently shortened by any terminal disclaimer," in the event that said prior patent later:

- expires for failure to pay a maintenance fee;
- is held unenforceable;
- is found invalid by a court of competent jurisdiction;
- is statutorily disclaimed in whole or terminally disclaimed under 37 CFR 1.321;
- has all claims canceled by a reexamination certificate;
- is reissued; or
- is in any manner terminated prior to the expiration of its full statutory term as presently shortened by any terminal disclaimer.

Check either box 1 or 2 below, if appropriate.

1. ☐ For submissions on behalf of a business/organization (e.g., corporation, partnership, university, government agency, etc.), the undersigned is empowered to act on behalf of the business/organization.

I hereby declare that all statements made herein of my own knowledge are true and that all statements made on information and belief are believed to be true; and further that these statements were made with the knowledge that willful false statements and the like so made are punishable by fine or imprisonment, or both, under Section 1001 of Title 18 of the United States Code and that such willful false statements may jeopardize the validity of the application or any patent issued thereon.

2. ☒ The undersigned is an attorney or agent of record. Reg. No. 37,491

/Kang S. Lim/
Signature

August 16, 2008
Date

Kang S. Lim
Typed or printed name

925-570-8198
Telephone Number

- ☒ Terminal disclaimer fee under 37 CFR 1.20(d) included.

WARNING: Information on this form may become public. Credit card information should not be included on this form. Provide credit card information and authorization on PTO-2038.

*Statement under 37 CFR 3.73(b) is required if terminal disclaimer is signed by the assignee (owner).
Form PTO/SB/96 may be used for making this certification. See MPEP § 324.

This collection of information is required by 37 CFR 1.321. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.11 and 1.14. This collection is estimated to take 12 minutes to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.

**TERMINAL DISCLAIMER TO OBIATE A DOUBLE PATENTING
REJECTION OVER A "PRIOR" PATENT**Docket Number (Optional)
FAS-003-US

In re Application of: Ramirez et al.

Application No.: 10/758,845

Filed: January 16, 2004

For: GUN CHAMBER

The owner*, HALO50, INC., of 100 percent interest in the instant application hereby disclaims, except as provided below, the terminal part of the statutory term of any patent granted on the instant application which would extend beyond the expiration date of the full statutory term **prior patent** No. 6,532,876 as the term of said prior patent is defined in 35 U.S.C. 154 and 173, and as the term of said **prior patent** is presently shortened by any terminal disclaimer. The owner hereby agrees that any patent so granted on the instant application shall be enforceable only for and during such period that it and the **prior patent** are commonly owned. This agreement runs with any patent granted on the instant application and is binding upon the grantee, its successors or assigns.

In making the above disclaimer, the owner does not disclaim the terminal part of the term of any patent granted on the instant application that would extend to the expiration date of the full statutory term as defined in 35 U.S.C. 154 and 173 of the **prior patent**, "as the term of said **prior patent** is presently shortened by any terminal disclaimer," in the event that said **prior patent** later:

- expires for failure to pay a maintenance fee;
- is held unenforceable;
- is found invalid by a court of competent jurisdiction;
- is statutorily disclaimed in whole or terminally disclaimed under 37 CFR 1.321;
- has all claims canceled by a reexamination certificate;
- is reissued; or
- is in any manner terminated prior to the expiration of its full statutory term as presently shortened by any terminal disclaimer.

Check either box 1 or 2 below, if appropriate.

1. ☐ For submissions on behalf of a business/organization (e.g., corporation, partnership, university, government agency, etc.), the undersigned is empowered to act on behalf of the business/organization.

I hereby declare that all statements made herein of my own knowledge are true and that all statements made on information and belief are believed to be true; and further that these statements were made with the knowledge that willful false statements and the like so made are punishable by fine or imprisonment, or both, under Section 1001 of Title 18 of the United States Code and that such willful false statements may jeopardize the validity of the application or any patent issued thereon.

2. ☒ The undersigned is an attorney or agent of record. Reg. No. 37,491

/Kang S. Lim/
Signature

August 16, 2008
Date

Kang S. Lim
Typed or printed name

925-570-8198
Telephone Number

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IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

PATENT

In re application of: RAMIREZ et al.

Attorney Docket No.: FAS-003-US

Application No.: 10/758,845

Examiner: KNOX, Stewart

Filed: January 16, 2004

Group: 3641

Title: GUN CHAMBER

Confirmation No.: 6940

FILED VIA EFS

STATEMENT UNDER 37 CFR 1.132

Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

DATE: August 9, 2008

Dear Sir:

I, Donald Wadsworth, hereby declare as follows:

1. I am the founding President and major shareholder of New World Environmental dba New World Technology (hereinafter "NWT"), a California corporation. I am also NWT's Senior Research Scientist.
2. I hold an B.S. in Engineering Technology from Oklahoma State University of Stillwater, Oklahoma, and an M.S. in Physics from San Jose State University of San Jose, California.

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3. I have extensive experience in the field of small arms weapon design and manufacture, with experience and training in firearms and their effects ranging from small arms to strategic weapons for the past 30 years. Prior to founding NWT, I was employed by the Department of Energy's Lawrence Livermore National Laboratory's weapons design division from 1981 to 1985. From 1972 to 1976 I was on active duty in the U.S. Air Force, and then from 1977 until 1980 I was in the U.S. Army Reserve. During this time I received extensive training in the application and maintenance of conventional infantry and support weapons.

4. I believe that the design of 50 caliber weapons, and in particular the gun chamber of these weapons, has been substantially unaltered since the introduction of the 50 caliber Browning Machine Gun (50 caliber BMG or M2) in 1917. It is also my belief that 50 caliber BMG based weapons, ranging from shoulder mounted weapons (e.g., Barrett) to much larger vehicular/air-frame/water-craft belt-driven weapons, are still in extensive use in today's modern militaries, including the US Army, US Navy, US Marines, US Air Force, US Coast Guard, and US SOCOM (Special Forces Command). The 50 caliber BMG class of weapons has also found widespread acceptance in both Federal and State law enforcement agencies, including the FBI, DEA, DOE, Border Patrol and many SWAT teams.

5. I believe that for any given caliber, there are infinite combinations of dimensions available to design a gun cartridge and a chamber for receiving such a cartridge. Such dimensions include chamber length, chamber diameter, chamber taper, necking degree and bore diameter. Hence determining a single optimal set of dimensions for a 50 caliber chamber, assuming one does exist, would be unduly burdensome, as this would require extensive and unreasonable experimentation, without any guarantee of success. Moreover, since the introduction of the 50 caliber BMG in 1917, many have assumed and accepted that firearms with large bore diameters are inherently inefficient and necessarily cumbersome, and changes in chamber dimensions alone would not reasonably be expected to result in an efficient 50 weapon design without substantially compromising bullet ballistic performance. However, the chamber design of the present invention (hereinafter referred to

as "HALO50") substantially eliminates the cumbersome weight and size of currently adopted 50 caliber weapons platforms as well as significantly improving or eliminating all the additional inefficiencies and disadvantages mentioned above.

6. I believe that the water weight, i.e., case volume, of a gun cartridge does not depend solely upon length and diameter of the cartridge. Contrary, it is my belief that other chamber dimensions, including bullet seating depth, cartridge taper, necking degree and length, cartridge wall thickness, primer wall thickness and extractor groove depth all have measurable influence upon the total water weight of the cartridge.

7. More specifically, the 50 caliber weapon and cartridge of the present invention is an innovative light weight system that offers great potential that will yield great benefits to the Departments of Defense (Army, Navy, Air Force, Marines, and Coast Guard) as well as Law Enforcement and other Government Agencies. In compliance with the goals of the Lightweight Small Arms Technologies Program (LSAT) which is a part of the Army-led Joint Services Small Arms Program (JSSAP), the HALO50 chamber presents innovative ideas for drastically reducing the combined gun and ammunition weight as a family of 50 caliber firearms that the Army has depended upon for nearly a century virtually unchanged. The HALO50 cartridge, resulting from HALO50 chamber, is 40% of the weight of the current 50 caliber BMG cartridge while delivering virtually 100% of the 50 caliber BMG performance when firing the standard mil-spec BMG 50 caliber projectiles needed for today's very challenging battle theaters.

8. I have personally fired a HALO50 prototype weapon chambered for the lightweight HALO50 caliber cartridge which utilizes the mil-spec BMG 50 caliber projectile. This fully functional prototype weapon is a bolt action rifle weighing only 19 pounds with a 28 inch barrel chambered to the HALO50 specifications. Measured recoil energy was significantly less than the maximum allowed mil-spec requirements for a shoulder mounted weapon of similar caliber.

9. Hence, I strongly believe there is an immediate and strong need for 50 caliber weapons and ammunition that exhibits significantly reduced overall length and weight, reduced recoil, low muzzle flash, reduced round weight, and increased overall efficiency. I am convinced that such weapons would aid military operations, significantly reduce logistical costs in manufacturing and delivery to a war zone, and ultimately save the lives of our troops. I believe that this need is longstanding given the historic and ongoing use of 50 caliber weapons. However, despite this long felt need, I believe that no weapon system has been produced that has the greatly improved combination of efficiency and compactness with logistical savings that is granted by HALO50 chamber and cartridge of the present invention.

10. It is also my belief that there has been ample expenditure of financing and research in such weapons design by the Department of Defense (DOD) of the United States Government. However, despite these ample resources, I believe that others have failed to produce a lightweight 50 caliber gun chamber design which fits standard bore diameters with the desired improvement in efficiency and capable of being adapted to multiple weapons systems for a vastly wider range of applications than is ever possible with the much larger and heavier 50 caliber BMG based weapons..

11. Additionally, I believe that given the urgent need of and keen interest expressed by military branches and law enforcement agencies for compact efficient large caliber weapon systems, there is clearly investor interest in commercializing firearms and ammunition utilizing the disclosed lightweight and highly adaptable HALO50 gun chamber, thereby ensuring its eminent commercial success.

12. I declare that all statements made herein of my own knowledge are true, all statements made herein on information and belief are believed to be true, and all statements made herein are made with the knowledge that whoever, in any matter within the jurisdiction of the Patent and Trademark Office, knowingly and willfully falsifies, conceals, or covers up by any trick, scheme, or device a material fact, or makes any false, fictitious or fraudulent statements or representations, or makes or uses any false writing or document knowing the same to contain any false, fictitious or fraudulent

Application No. 10/758,845
Statement Dated August 9, 2008

statement or entry, shall be subject to the penalties including fine or imprisonment or both as set forth under 18 U.S.C. 1001, and that violations of this paragraph may jeopardize the validity of the application or this document, or the validity or enforceability of any patent, trademark registration, or certificate resulting therefrom.

Respectfully Submitted,

August 8, 2008
Dated

Donald Wadsworth
Donald Wadsworth

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IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

PATENT

In re application of: RAMIREZ et al.

Attorney Docket No.: FAS-003-US

Application No.: 10/758,845

Examiner: KNOX, Stewart

Filed: January 16, 2004

Group: 3641

Title: GUN CHAMBER

Confirmation No.: 6940

FILED VIA EFS**STATEMENT UNDER 37 CFR 1.132**

Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

DATE: August 14, 2008

Dear Sir:

I, Hershel Davis, hereby declare as follows:

1. I am the Corporate Master Chief (CMC) of Blackwater Inc., reporting directly to the President. Prior to Blackwater, I served 34 years in the United States Navy SEALs as the Command Master Chief of the US Navy's Special Warfare Unit Eight and SEAL Team Five. At the time of my retirement I was the highest ranking enlisted man in the Navy. During my career as a U.S. Navy SEAL, I had the opportunity to work with virtually every weapons system utilized by the U.S. special operations community including 50 caliber BMG platforms. My civilian experience has included the training of hundreds of law enforcement and military personnel in weapons and

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tactics. In addition, I have been engaged by a large number of organizations as a security consultant, including the US Olympic Committee.

2. I am a recognized expert in the field of weapons training and tactics, with extensive experience and training in firearms and their effects ranging from small arms to strategic weapons.

3. From personal experience in the Navy SEALs, I strongly believe that there is an immediate and strong need for 50 caliber weapons and ammunition that exhibits significantly reduced overall length and weight, reduced recoil, low muzzle flash, reduced round weight, and increased efficiency. I am convinced that such weapons would aid military operations, significantly reduce logistical costs in manufacturing and delivery to a warzone, and ultimately save the lives of our troops. I believe that this need is longstanding given the historic and ongoing use of 50 caliber weapons. However, despite this long felt need, I believe that no weapon system has been produced that has the greatly improved combination of efficiency and compactness with significant logistical savings that is granted by the lightweight 50 caliber cartridge and weapon system (hereinafter "HALO50") provided by the present invention.

4. I have personally fired the HALO50 weapon chambered for the lightweight 50 caliber cartridge and current 50 caliber BMG projectiles. The felt recoil was much less than that of any previous 50 BMG weapons that I have fired of greater weight and dimension.

5. Based on personal knowledge, I believe that there has been ample expenditure of financing and research in such weapons design by the Department of Defense (DOD) of the United States Government. However, despite these resources, no one has produced a lightweight 50 caliber gun chamber which fires the standard mil-spec 50 caliber BMG projectiles with the desired efficiency and capable of being adapted to multiple weapons systems for a wide range of applications. My belief is based on many years of personal experience deployed in past and present theatres of operations ranging from the jungles of Vietnam to the open deserts and vast mountain ranges of Iraq and Afghanistan, especially with respect to effective long-range shoulder-mounted anti-personnel

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Statement Dated August 14, 2008

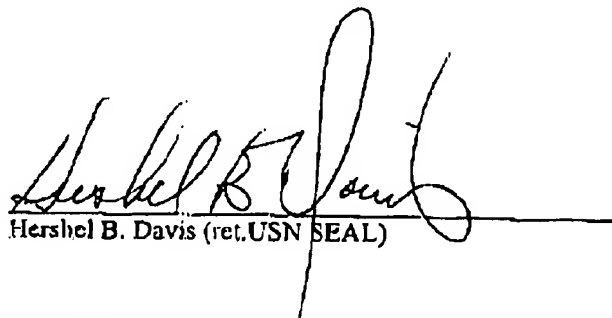
and anti-material weapons. To achieve this, a lightweight weapon system must incorporate a lightweight chamber designed to fire a lightweight cartridge with the mil-spec 50 caliber BMG projectiles as demonstrated to me in the HALO50 chamber/cartridge design.

6. Additionally, given the urgent need of and interest expressed by military branches and law enforcement agencies for compact and efficient large caliber weapon systems, there has been strong interest in commercializing firearms and ammunition utilizing the disclosed lightweight and highly adaptable HALO50 gun chamber, thereby ensuring its eminent commercial success because of the high potential cost savings in design, manufacturing and significant cost reductions in handling, storage, re-supply, and shipping.

7. I declare that all statements made herein of my own knowledge are true, all statements made herein on information and belief are believed to be true, and all statements made herein are made with the knowledge that whoever, in any matter within the jurisdiction of the Patent and Trademark Office, knowingly and willfully falsifies, conceals, or covers up by any trick, scheme, or device a material fact, or makes any false, fictitious or fraudulent statements or representations, or makes or uses any false writing or document knowing the same to contain any false, fictitious or fraudulent statement or entry, shall be subject to the penalties including fine or imprisonment or both as set forth under 18 U.S.C. 1001, and that violations of this paragraph may jeopardize the validity of the application or this document, or the validity or enforceability of any patent, trademark registration, or certificate resulting therefrom.

Respectfully Submitted,

14 August 2008
Dated


Hershel B. Davis (ret.USN SEAL)

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